



Date: December 2, 1981

Subject: Primary Process R & D - Tucson  
Monthly Report - November, 1981

From/Location: E. L. Cambridge/Tucson

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## BASIC RESOURCES RESEARCH

### General

D. M. Blake attended the USBM Mini Plant Committee meeting in Boulder City, Nevada. The Bureau of Mines seems to be winding down their effort because of funding restraints.

### Anaconda Clay Process

Work on the impurity leach for product purity has been hampered by not having a representative sample of ACH from a single crystallization. We have recently received a 22 lb. sample from the Bureau of Mines mini-plant, which should be representative. Leaching tests will be repeated using this sample.

A record of invention is being drafted to cover our work on synthesis of anhydrous aluminum chloride from ACH crystals using modifications of the CSIRO process. Theoretical calculations project an overall energy requirement from clay to metal equivalent to the ASP route from bauxite to metal.

### AD-105 Process

A complete process run, starting with raw clay through to product, was carried out in the lab. We are currently awaiting analytical results of samples from the various process steps.

## REDUCTION RESEARCH

### AD-108 Process

Three sets of composite anodes have been made. The first set is now baked and the second and third sets will finish coking on December 2.

The furnace and electrolytic cell for composite anode electrolysis have been constructed. We now plan to start up the cell on December 7.

An initial review of patentable ideas involving the composite anode was carried out and we anticipate submission of several invention records during December.

### Modified Electrolytes

Detailed planning for the initial phase of this work involving relatively conventional lithium additions is underway, with actual experimental work expected to begin towards the latter part of December. One hang-up has been development/purchase of equipment to measure electrical conductivity.

### Potlining Disposal/Reclamation

Report No. 81-23 "Technical Review of Potentially Available Technologies for the Treatment of Spent Potlinings" by John Snodgrass was issued.

The initial meeting with Alcan concerning the possible joint development program is now confirmed for December 8 in Montreal.

Based on the technical review and in-house lab work we have submitted a record of invention based on a modification to the Showa process for treatment of potlining.

### DEVELOPMENT AND TECHNICAL SERVICES

#### General

Presentations of Primary Processes R & D plans and programs were made to Columbia Falls and Sebree management and technical personnel. During the visit, there was also significant follow-up and clarification relating to the requested plant development projects for 1982.

#### Pot Magnetics

The initial bus bar modification for Columbia Falls was received from ASV. The recommended changes give the theoretically desired configuration of magnetic field as calculated by the computer model. Field checks indicate that the changes can be practically carried out. This was communicated to ASV.

#### OTHER

Significant effort has been devoted to finalizing all design details of our proposed Carbon and Reduction Research Facility. All required information to prepare the AFE will be available December 3. We intend to have the submittal copies in Louisville by December 10.

  
E. L. CAMBRIDGE

ELC:pm

cc: R.W.Bartlett

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